ADST/WDL/TR-93-003031A

ADST
Cold Start Procedures Manual
For the
BDS-D
M1/XROD 1.1.0

Loral Western Development Labs
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Simulation Training and Instrumentation Command
Naval Training Systems Center
12350 Research Parkway
Orlando, Fl 328266-3275

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14. SUBJECT TERMS

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1 Scope

Per DI-MISC-80711, this manual details the M1/XROD Simulator Cold Start Procedures specific to the Ft. Knox, Kentucky site. Installation and distribution instructions, interaction with other simulators, and hardware compatibility notes (as applicable), as well as a detailed overview of the software release are included in the ADST Version Description Document for the BDS-D M1/XROD 1.1.0; document number ADST/WDL/TR--92-003030.

"I, Pete Peterson on this date, 8/20/93, hereby certify that the software release BDS-D M1/XROD 1.1.0 has been built from limited access, controlled baseline. This software is, to the best of my knowledge, free of malicious code intended to subvert its operation."

2 Cold Start Methodology

The Cold Start procedure for the M1/XROD describes the user's ability to regenerate a GT-111 computer GTOS4.7 operating system and load the M1/XROD application software. This procedure consists of installing and bringing on-line the operating system, application, data files, boot files, configuration files and databases required to operate the M1/XROD. This procedure describes how to verify the M1/XROD "run time set". Verification of the load is demonstrated through a series of checklists. This procedure also provides a detailed list of instructions that allow the user to startup and shutdown the M1/XROD.

2.1 Required Resources

The following sections list the required equipment and resources for the M1/XROD simulator.

2.1.1 Hardware Resources

The following hardware resources are required for running the M1/XROD and executing the cold start procedures.

Hardware Item	Description
BBN GT111 CIG	Bolt, Beranek, & Newman (BBN) GT-111 Computer Image Generator with a minimum of 6MB active memory area for the TX Backend (Subsystem 0) and a minimum of 2MB of active memory area for the T backend (Subsystem 1).
ENP10 or ENP100	CMC Ethernet card (facilitates a connection to SIMNET)

2.1.2 Software Resources

The magnetic media prepared and supplied as part of the BDS-D M1/XROD 1.1.0 are identified below:

Media Type	Label	Description
DC 6150 Tape *	BDS-D M1/XROD 1.1.0	Initial M1/XROD Release (Source)
DC 6150 Tape *	BDS-D M1/XROD 1.1.0	Initial M1/XROD Release (Application)
DC 6150 Tape *	GTOS 4.7	-GTOS 4.7 Operating System -GT rtt 5.7 Visual System Software

* Tapes delivered upon request.

2.1.3 Other Required Resources

There are no other required resources.

2.2 Cold Start Procedures

The following section outlines the procedure for performing a cold-start on the GT-111 system.

2.2.1 System Preparation

This section describes formatting the disks on the GT 111 and installing the GTOS 4.7 operating system. See Appendix A for detailed instructions. These instructions demonstrate how to logon to the system, format the disks, install the operating system, and perform system checks verifying that the operating system is running correctly.

2.2.2 Installation of Release

This section describes the installation of the BDS-D M1/XROD 1.1.0 release tape onto the target machine.

Installation of Release:

1. Reboot system by pressing the reset button located on GT0 board of the CIG cabinet. Wait for the gt0> and gt1> prompts.

2. Insert release tape into the tape drive. Wait for "yellow" light to turn "green".

3. Toggle to gt0> console by pressing the "Switch Session" key.
   At gt0> prompt (on console GT0), enter:
   >cd / (go to root directory)
   >tar xv (read in application tape)

   Note: All files will be placed in their proper location if the "CD /" command was performed. If not, the files will be improperly placed and the system will not function.)

4. Create database directory and tar in database file(s).

```
>cd /simnet          (go to simnet directory)
>mkdir db            (create database directory)
>cd db               (go to database directory)
>tar xv              (read in database tape)
```

5. Set boot string if necessary:

```
>ip0:A:GTOS4.7:/boot0.m1    (boot0.m1 is the desire boot file)
>cr
>reset
>y
>cr
>y
```

6. Create assoc.def file in /simnet/data directory with the following format:

```
----------------------
|site 1              |
|host 33             |
----------------------
```

site and host numbers are site specific. 1 and 33 are examples only. There is a space between the site and its number. This holds true for the host also.

7. Modify the /simnet/vehicle/m1/data/texture.m1 file if needed.

8. Update m1vconfg.d for gt111 environment.

```
>cd /simnet/vehicle/m1/data
>cp m1vconfg.111 m1vconfg.d
```

9. Calibrate simulator. (This step should be executed by the technician.)

```
>cd /simnet/bin

>x_calib
or
> calibrat /simnet/vehicle/m1/data/m1dev.def ( with proper options)

(/simnet/vehicle/m1/data/m1_calib.d is created)
```

A list of executable files, data files, configuration files, startup and shutdown files and their respective location in the directory tree is shown in Table 2-1. Table 2-1 allows the user to verify what was copied off the BDS-D M1/XROD 1.1.0 release tape on to the target machine to run in an operational environment is a complete list of application files and their location in the directory tree.

Table 2-1 Application Files and Location in Directory Tree

DIRECTORY	APPLICATION FILES
a/	boot0.m1 boot1.m1 runcig

a:/simnet/bin	calibrat enp.bin enp100.bin extst* extst2* ivclient* netcon* netdump* netxr* panel.tst svtst* tfx* ml x_calib x_ptest xrod_bh xrod_gr7 xrod_hl xrod_kx xrod_nt7

a:/simnet/data	asid.d hunt.m knox.m laser.d m392a2.d m392a2.d43 m392a2.p m456a1.d m456a1.d43 m456a1.p m789.d m789.p m791.d m791.p m792.d m792.p m793.d m793.p m855.d m855.p simnet.amo simnet.veh assoc.def - user needs to create this file with the following information: ----------

```
|site 1     |
|host 33    |
----------
```

site and host numbers are site specific. 1 and 33 are examples only. There is a space between the site and its number. This holds true for the host also.

a:/simnet/data/download	gtfade.bft gtfade.fcm gtfade.gft gtfade.rft ppmcp.off ppmcp.on ppmcpa ppmspca ppmspcb ppmss simtowm0.000 simtowm1.000 simtowm2.000 simtowm3.000 simtowm4.000 simtowm5.000 simtowm6.000 simtowm7.000 simtowm8.000 simtowm9.000 simtowmc.000 simtowml.000 simtowmt.000
a:/simnet/vehicle/m1/data	apds105.m1 apds25.m1 flech60.m1 heat105.m1 hei25.m1 hellfire.m1 m107.m1 m151.m1 m155.m1 m1_dtad.p m1_pars.d m1_pars.bh m1_pars.gr7 m1_pars.hl m1_pars.nt7 m1_pars.kx - the followings apply to other database parameter files also. gt101 change number of subsystem to "1" and delete the extra database and texture reference paths. gt111 - change number of subsystem to 2. - duplicate the database and texture reference directory at the bottom of the file for the extra subsystem.

	m1ammopn.p m1calib.com m1cmcflt.f m1dev.def m1drivpn.p m1fmssle.d m1msgpar.d m1prilst.d m1remote.def m1sdam.d m1ser0.def m1ser1.def m1sounpn.p m1thresh.d m1turrpn.p m73.m1 m855.m1 maverick.m1 mk82.m1 rm1drvpn.p rm1trrpn.p stupid.txt textures.m1 tow.m1 xrod105.m1* m1vconfg.101 m1vconfg.111 m1vconfg.d - user needs to ensure this file is for the proper machine: gt101 >cp m1vconfg.101 m1vconfg.d gt111 >cp m1vconfg.111 m1vconfg.d m1_calib.d - hardware engineer/technician needs to create this file by invoking "/simnet/bin/x_calib".
a:/simnet/vehicle/m1/data/download	ppmssm1.all ppmssm1.gun
a:/simnet/ded	simdo000.012

2.3 Warm Start and Shutdown Procedures

The following section outlines the procedure for performing a warm-start and shutdown of the GT-111 system.

2.3.1 Startup Procedures

This section describes in detail how to startup the M1/XROD simulator.

STARTUP PROCEDURES

CONTROL ACTION	EXPECTED RESULTS
1. Locate the XROD Simulator and the Computer Image Generator (CIG). The CIG is a GT-111.	N/A
2. Turn on the system power in sequence. The main power switch is located in the back of the CIG. Flip it up to power on. The CIG power switches are in the upper right-hand corner of the CIG and are labelled Master Power, 6U, 9U-upper and 9U-lower. The power on sequence is "Master Power, 6U, 9U-upper and 9U-lower" from left to right. Master Power must be "on" before 6U, 9U-upper and 9U-lower can be "on". If CIG power is already on, reset the CIG by pressing the ***RESET*** button located on the GT0 board of the CIG and proceed to Step 4.	All TV screens will go black.
3. Once the power is on, the CIG will enter a "Power-up self test" and attempt to "autoboot". This takes about 5 minutes and is preceded by the console message: "Autoboot in progress, break to abort". Break is accomplished by pressing the ***"abort"*** button on the GT0 processor. (It is recommended to allow the self test to proceed).	Display "Configured as GT111" message upon completion.
4. The console at this time consists of a FALCO F5000 terminal, with session control performed by pressing the ***"switch session"*** key. This key causes the console terminal to toggle between the GT0 and GT1 processors. Power on or reset places the session control in the GT0 position. If the console is not in GT0 position, place it so and continue with the next Step.	N/A
5. With the console terminal toggled to the GT0 console, enter ***"source runcig"***. This will invoke a command script which starts the GT real-time system. Wait for the following message to appear "=== USING MPV INTERFACE ===". If any other message appears, reboot the CIG.	The message "=== Using mpv interface ===" will be displayed on GT0.

6. Toggle to GT1 console with the "Switch Session" key. On the GT1 console, enter: ***"source xrod.ZZ"*** (where the following applies): ZZ = kx (Ft. Knox) or hl (Hunter Liggett), etc.. This will invoke a command script which will bring up the M1/XROD software, load the database, and place the M1/XROD in the database at ground level.	Messages of various complexity will inform the user of the progress of the CIG loading. The message " SIMULATION INITIZATION COMPLETE" displays on console when system is ready.
7. The command scripts in Steps 5 and 6 perform their operations with a certain degree of synchronization. If something in one script cannot be performed, the other will pause and wait for it. Unless two separate consoles are implemented, it is wise to toggle back and forth between GT0 and GT1 with the "Session Switch" until both complete their scripts and the M1/XROD simulator is ready (see box on right).	Video monitors display out-the-window view of the database, and the M1/XROD is operational.

2.3.2 Shutdown Procedure

The table below provides a written set of procedures, which describe in detail how to shutdown the M1/XROD simulator.

SHUTDOWN PROCEDURES

CONTROL ACTION	EXPECTED RESULTS
1. On console GT1, press q (to quit) the simulation.	Console displays "gt1>"
2. On console GT1, enter the command "shutdown". An orderly shutdown will commence.	Console will display "147-Bug>"
3. Press the "Switch Session" key to toggle to GT0.	Console will display "GT0>"
4. On console GT0, press return key to exit real-time.	Console will display "Gossip>"
5. To power off the simulator, turn off the power switches 9U-lower, 9U-upper, 6U, and Master Switch from right to left. (Reverse sequence of Step 2 in start up procedure).	None * Should leave the system "on" if it is going to be use often.

3 Release Validations

3.1 Cold Start Validation

The following written set of procedures instructs the user on how to validate the success of the cold start.

Cold Start Validation Instructions:

To validate the cold start, the user should be able to reboot the system, move about in the file system (cd), list file contents (more), and see directory contents (ls).

3.2 Warm Start Validation

The following written set of procedures instructs the user on how to validate the load once it is operational.

Warm Start Validation Instructions:

The expected results detailed in the Startup Procedure Section are indicative of a successful warm start. After completion of Startup Procedure Step 7 (Para 2.3.1), M1/XROD may be driven through the database and weapons may be fired. The M1/XROD vehicle will be visible in the database by other vehicles including the PVD and stealth.

4 Notes

4.1 Abbreviations/Acronyms

The following is a list of acronyms used in this document.

ADST	Advanced Distributed Simulation Technology
BBN	Bolt, Beranek, & Newman
BDS-D	Battlefield Distributed Simulation-Developmental
CDRL	Contract Data Requirements List
CSCI	Computer Software Configuration Item
CSP	Cold Start Procedure
DID	Data Item Description
DO	Delivery Order
DOD-STD	Department of Defense Standard
PVD	Planned View Display
SIMNET	Simulation Network
UNIX	Unix Operating System
WDL	Western Development Labs

Appendix A

GTOS 4.7 Release Notes

BBN GT100 SERIES
VISUAL SYSTEM
SOFTWARE RELEASE NOTES

GT100 Series Visual System Software Release 5.
Final Release
Release Date: 20-May-1991

This release includes a new version of the GT operating system: GTOS4.7
Release Date: 27-February-91

RELEASE NOTES AND INSTALLATION INSTRUCTIONS

These notes provide the information to install the operating system, real time application software and utilities for the GT100 Visual System. One cartridge tape is provided for this purpose. It contains the system software.

1.0 CHANGES MADE

1.1 CHANGES MADE WITH RELEASE GTOS4.7

- The release of GTOS4.6 was supposed to have a change to the 'ape:', 'idc"', and 'terminal:' drivers. Due to a procedural error, this fix did not get incorporated into the release. GTOS4.7 fixes this problem.

1.2 CHANGES MADE WITH RELEASE GTOS4.6.

- The Caliper CP150A SCSI tape drive has been discontinued. The replacement is a CP150SE. A change has been made to the SCSI tape driver to use a string table from the MVME147's nonvolatile RAM rather than from inline code.

- The release procedure has been modified to build the string table in the nonvolatile RAM.

- A change has been made to the ethernet driver to return an error status to the caller if a transmission error ocurrs. Previously the driver would attempt to repeat the transmission forever.

- The tape archive utility (tar) has had a bug fixed where an absolute pathname was not parsed properly resulting in an infinite loop.

- The tool 'dbread' has been modified to be more verbose in its execution. It is more difficult to accidentally cause the program to continue operations accross a tape volume until the user is ready.

1.3 CHANGES MADE WITH THIS RELEASE 5.7

- Real-time software "quit" function implemented in gossip.

- Dual pool of DED model space implemented on systems utilizing 7Km databases and having a minimum AAM configuration of 6Mb.

1.4 CHANGES MADE WITH PREVIOUS RELEASE 5.6

- On line shot reporting added. Interface note available for SIM/CIG message interface modifications. This change is active in slave ballistics version **ballgtr5.5**.

- Channel specific color lookup table switching on TX backends fixed. Interface note available for the MSG_SUBSYS_MODE structure.

- Models with types between 64 and 127 will now display bumper numbers correctly.

- The real-time software will now allow the download of texture maps and ppm files after a "cold" CIG power up.

- The TX backend mode initialization has been corrected.

1.5 CHANGES MADE WITH RELEASE 5.5

- Added the -E switch. Allows ethernet buffer exchanges among groups of applications as well as the exchange of buffers larger than the 1518 byte limitation incurred when using the -e switch.

- The Flea interface now correctly displays the vehicle heading.

- A feature to help the user test the PPM download (screen size & location) has been added to the Flea interface.

- The interface message MSG_FILE_DESCR now supports the specification of an exact filename. Previously, the software would attempt to find the highest version (filename extension) of the file specified.

- When specifying configuration/database files to use, the following precedence is now in effect; highest to lowest:

  MSG_FILE_DESCR - (Gossip input) - SUBSYS.CFG - DATABASE.CFG

- The interface between the Force board and the MPV has been changed slightly to help prevent the "ghosting" of 2D overlay images.

1.6 HARDWARE COMPATIBILITY NOTES

• RTSW Release 5.7 is designed to be backward compatible with currently fielded GT1XX systems. However, software validation testing was only performed on a GT100 model C

•The software support of the new MPV 5 board does require a configuration change to existing MPV 4 boards. To work correctly with Release 5.5 software, DIP switches SW1 on the MPV 4 must be set all OFF. On the MPV 5, DIP switches SW1 must have switch 1 set ON and all other switches set OFF.

1.7 DISCLAIMERS

• The network interface has not been fully tested. It is possible to 'drive' the CIG from a simulation host over an ethernet network using the Simnet 6.0 protocol. Operation with other vehicles on the network has not been verified. The reporting of ballistic hit messages will report erroneous results."

2.0 RELEASE PROCEDURE

The following description of the prompted dialogue for installing this release uses the conventions described below.

- Instructions and notes are underlined
- Prompts and computer generated text is in plain type
- **User responses are in bold type**

Power up the 6U chassis and then the 9U's.
Wait for the 'gt-0>' prompt.

```
gt-0> shutdown
```

Unmounting all managers and uninstalling all devices ...

```
147-Bug> noab
147-Bug> reset
```

Note: 147-Bug version 1.0 will respond with different prompts than version 2.0.

Version 1.0:

```
Reset Local SCSI Bus [Y,N]Y? y
Cold/Warm Reset [C,W] = C? c
Execute Soft Reset [Y,N] N? y
```

Version 2.0:

```
Reset Local SCSI Bus [Y,N]=Y? y
Automatic Reset of known SCSI Busses on RESET [Y,N] = Y? y
Cold/Warm Reset Flag [C,W] = C? c
Execute Soft Reset [Y,N]=N? y
```

From this point 147-Bug versions 1.0 and 2.0 operate the same.

Enter the tape drive string table into the MVME147's nonvolatile RAM using the following commands. The commands must be entered exactly as shown. If the string table is not built properly, GTOS will not be able to install the devices 'nrst4:' or 'rst4:' and will issue an error message indicating the devices were not found.

```
147-Bug> ms fffe0000 'CALIPER CP150'
```

There is 1 space between 'CALIPER' and 'CP150'.

```
147-Bug> ms fffe000d 00
147-Bug> ms fffe000e 'SANKYO  CP150'
```

There are 2 spaces between 'SANKYO' and 'CP150'.

```
147-Bug> ms fffe001b 0000
```

Verify the contents of the string table with the following command. All bytes should be exactly as shown:

```
147-Bug> md fffe0000:1d;b
FFFE0000 43 41 4C 49 50 45 52 20  43 50 31 35 30 00 53 41    CALIPER CP150.SA
FFFE0010 4E 4B 59 4F 20 20 43 50  31 35 30 00 00             NKYO  CP150..
147-Bug>
```

Set the MVME147 time of day clock

```
147-Bug> set
Tuesday     3/26/91     9:35:30
Present calibration value = -0
Enter data as MM/DD/YY
03/26/91
Enter Calibration value +/-(0 to 31)
-0
Enter time as HH:MM:SS (24 hour clock)
09:36:00
147-Bug>
```

Install the BOOT TAPE into the tape drive and wait for the GREEN light.

Note: If "go ffa00000" is entered before the green light on tape drive, the following message may appear up to 10 times.

```
Waiting for tape drive.
147-Bug> go ffa00000
Effective address: FFA00000
   RTSCOPE 68K v1.03

 FPU Detected
RC>go

GTOS version 4.7 of Tue Jan 8 15:05:51 PST 1991
3013720 (0x2dfc58) bytes of free system memory starting at 0xe03a4
Installing config: at 0x0 ==> OK.
bootstrap_data: illegal value
Can't open bootfile "" - IFXENOSYSDEV  0x0780 no system device.
gt-0> install nrst4:
Installing nrst4: at 0x0 ==> OK.
gt-0> install rst4:
Installing rst4: at 0x0 ==> OK.
gt-0> setsys ip0:
gt-0> install ip0:
Installing ip0: at 0xffffa000 ==> OK.
gt-0> mount cache:
Mounting cache: on ip0: ==> OK.
gt-0> nrst4:
Perform COMPLETE disk init (all data will be lost) [y or n]? y
Hard formatting ...
FORMAT: Formatting track 0.
FORMAT: Formatting track 100.
FORMAT: Formatting track 200.
FORMAT: Soft error on track 269 11.
FORMAT: Formatting track 300.
```

```
FORMAT: Soft error on track 328 2.
FORMAT: Soft error on track 328 2.
FORMAT: Soft error on track 328 2.
FORMAT: Slip sector on track 328 2.
FORMAT: Formatting track 400.
FORMAT: Formatting track 500.
FORMAT: Formatting track 600.
.
.
.
VERIFY: Verifying track 1200.
Initializing partition table ...
Initializing boot sector ...
Writing bootstrap ...
Soft formatting A: ...
Partition table zero OK.
Unmounting A: ==> OK.
Formatting A: ... OK.
```

Note: If you answer NO to all of the formatting questions, you will need to mount the disk before entering the cd a:/ → gt-0> mount a:

```
gt-0> cd a:/
gt-0> nrst4: xv
a:/gtos4.7 923 blocks
a:/bin/bctst 100 blocks
a:/bin/boot147 117 blocks
a:/bin/cat.68 blocks
a:/bin/config 117 blocks
a:/bin/cp 104 blocks
a:/bin/date 71 blocks
a:/bin/fmt.abs 116 blocks
a:/bin/dbrw 112 blocks
a:/bin/ddump 73 blocks
a:/bin/diff 69 blocks
a:/bin/diskstat 70 blocks
a:/bin/dload 121 blocks
a:/bin/fdump 73 blocks
a:/bin/fmt 126 blocks
a:/bin/hdr 68 blocks
a:/bin/idcprep 71 blocks
a:/bin/ident 70 blocks
a:/bin/ifxws 67 blocks
a:/bin/ls 106 blocks
a:/bin/mkconfig 123 blocks
a:/bin/mkdir 95 blocks
a:/bin/more 74 blocks
a:/bin/mset 68 blocks
a:/bin/mt 69 blocks
a:/bin/mv 95 blocks
a:/bin/od 99 blocks
a:/bin/printenv 68 blocks
a:/bin/rm 99 blocks
a:/bin/rmdir 95 blocks
a:/bin/sedit 117 blocks
a:/bin/setdate 78 blocks
a:/bin/settime 72 blocks
a:/bin/sreset 69 blocks
```

```
a:/bin/vi 264 blocks
a:/bin/stty 69 blocks
a:/bin/sum 69 blocks
a:/bin/tar 113 blocks
a:/bin/tar.abs 101 blocks
a:/cig/config/data2d.001 7 blocks
a:/cig/config/ammo_map.d 10 blocks
a:/cig/config/assoc.def 1 blocks
a:/cig/config/nsif.def 1 blocks
a:/cig/config/finsimt.001 193 blocks
a:/cig/config/README 1 blocks
a:/cig/config/ballist.cfg 1 blocks
a:/cig/config/files.cfg/cfg101.000 8 blocks
a:/cig/config/files.cfg/cfg102.000 14 blocks
a:/cig/config/files.cfg/cfg110.000 3 blocks
a:/cig/config/files.cfg/cfg111.000 10 blocks
a:/cig/config/files.cfg/cfg120.000 4 blocks
a:/cig/config/files.cfg/dbase2.cfg 1 blocks
a:/cig/config/files.cfg/slave77.cfg 11 blocks
a:/cig/config/files.cfg/dbase1.cfg 1 blocks
a:/cig/config/color.cfg 14 blocks
a:/cig/config/force0.080 65 blocks
a:/cig/config/force1.080 65 blocks
a:/cig/config/veh_map.d 19 blocks
a:/cig/config/lut32.000 7 blocks
a:/cig/config/task2d.415 65 blocks
a:/cig/config/textures.lst 3 blocks
a:/cig/data/db/spec3cow.001 920 blocks
a:/cig/data/db/simtd0ow.01c 747 blocks
a:/cig/data/db/spec3cow.002 920 blocks
a:/cig/data/download/simtowm0.000 65 blocks
a:/cig/data/download/simtowm1.000 65 blocks
a:/cig/data/download/simtowm2.000 65 blocks
a:/cig/data/download/simtowm3.000 65 blocks
a:/cig/data/download/simtowm4.000 65 blocks
a:/cig/data/download/simtowm5.000 65 blocks
a:/cig/data/download/simtowm6.000 65 blocks
a:/cig/data/download/simtowm7.000 65 blocks
a:/cig/data/download/simtowm8.000 65 blocks
a:/cig/data/download/simtowm9.000 65 blocks
a:/cig/data/download/simtowmc.000 9 blocks
a:/cig/data/download/simtowml.000 2 blocks
a:/cig/data/download/simtowmt.000 2 blocks
a:/cig/data/download/gtfade.bft 129 blocks
a:/cig/data/download/gtfade.fcm 2 blocks
a:/cig/data/download/gtfade.gft 129 blocks
a:/cig/data/download/gtfade.rft 129 blocks
a:/cig/data/download/ppmcp.off 2 blocks
a:/cig/data/download/ppmcp.on 2 blocks
a:/cig/data/download/ppmcpa 2 blocks
a:/cig/data/download/ppmspca 2 blocks
a:/cig/data/download/ppmspcb 2 blocks
a:/cig/data/download/ppmss 2 blocks
a:/cig/bin/rttgtr5.5 2241 blocks
a:/cig/bin/ballgtr5.5 280 blocks
a:/cig/bin/ded6.0 71 blocks
a:/cig/base/data2d.001 7 blocks
a:/cig/base/ammo_map.d 10 blocks
```

```
a:/cig/base/assoc.def 1 blocks
a:/cig/base/nsif.def 1 blocks
a:/cig/base/finsimt.001 193 blocks
a:/cig/base/README 1 blocks
a:/cig/base/ballist.cfg 1 blocks
a:/cig/base/files.cfg/cfg101.000 8 blocks
a:/cig/base/files.cfg/cfg102.000 14 blocks
a:/cig/base/files.cfg/cfg110.000 3 blocks
a:/cig/base/files.cfg/cfg111.000 10 blocks
a:/cig/base/files.cfg/cfg120.000 4 blocks
a:/cig/base/files.cfg/dbase2.cfg 1 blocks
a:/cig/base/files.cfg/slave77.cfg 11 blocks
a:/cig/base/files.cfg/dbase1.cfg 1 blocks
a:/cig/base/color.cfg 14 blocks
a:/cig/base/force0.080 65 blocks
a:/cig/base/force1.080 65 blocks
a:/cig/base/veh_map.d 19 blocks
a:/cig/base/lut32.000 7 blocks
a:/cig/base/task2d.415 65 blocks
a:/cig/base/textures.lst 3 blocks

gt-0> /bin/mkconfig

CIG model #:

        1. GT101
        2. GT102
        3. GT111
        4. GT110
        5. GT120

        Enter model type (1 - 5): <answer>

SIMULATION <--> CIG host interface method:

        1. DR11
        2. Shared memory (MPV)
        3. Ethernet

        (1 - 3): <answer>

MVME147 CPU# 0 running GTOS at 1000000 ? (y/n) y
MVME147 CPU# 1 running GTOS at 1400000 ? (y/n) <answer>
MVME147 CPU# 2 running GTOS at 1800000 ? (y/n) <answer>

Operating system version (from release notes)? 4.7

Creating directory '/etc'
Creating '/etc/motd'
Creating '/etc/config.sys'
Creating '/etc/boot0'
Creating '/etc/boot1'
Creating '/etc/boot2'
Copying /cig/base/files.cfg/cfg120.000 to /cig/base/cfg120.000
Copying /cig/base/files.cfg/dbase2.cfg to /cig/base/database.cfg

Boot structure set to:
        Device      : 0
```

```
        Lun         : 0
        Boot String : ip0:A:GTOS4.7:/etc/boot0

Autoboot is enabled
gt-0> reboot
Rebooting ...


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VME147 Monitor/Debugger Release 1.0 - 4/8/88

FPC  passed test
MMU  passed test

COLD Start
147-Bug>Autoboot in progress... To abort hit <BREAK>
147-Bug>BO

RAM address from VMEbus = $00000000

Booting from:   VME323 8,0 - ip0:A:GTOS4.7:/etc/boot0
IPL loaded at:  $00100000
Booting from file 'GTOS4    .6   '
Searching volume  'VOLUME_A.    '
Found boot file   'GTOS4    .6   '
First cluster = 00000002 file length = 0007348E
The current data sector is 000001B9
Data load address, entry point = 00005FE0 00006000
   RTSCOPE 68K v1.03

 FPU Detected
RC>go

GTOS version 4.7 of Tue Jan 8 15:05:51 PST 1991
3013720 (0x2dfc58) bytes of free system memory starting at 0xe03a4
Installing config: at 0x0 ==> OK.
Installing ip0: at 0xffffa000 ==> OK.
Mounting cache: on ip0: ==> OK.
Mounting A: on cache: ==> OK.
Installing dr0: at 0xffff0000 ==> OK.
Installing frameint: at 0x0 ==> OK.
Installing mmu: at 0x0 ==> OK.
Installing rst4: at 0x0 ==> OK.
Installing esifa1: at 0x0 ==> OK.
Installing esifa2: at 0x0 ==> OK.
Starting MPV component


        Configured as GT120

gt-0>
```

Remove the tape from the tape drive.

Follow an Customer specific or CIG specific release notes.

Installation of Release is now completed.

To run the real-time using the "spec" database, type the following

```
gt-0> cd /cig/base
gt-0> rttgtr5.7 -f 1 -s 15 -d
```

NOTE: For normal operation, users should execute the real-time s/w from the /cig/config directory.

3.0 EXECUTING THE REAL-TIME SOFTWARE

gt-0> rttgtr5.5 <invocation switches>

- *-A*

This activates the SIMNET server task.

- *-e <mode> <48-bit ethernet address>*

This switch is used to configure the CIG to communicate with the host computer via ethernet (the default is DR11). Mode 1 indicates the Master CIG this is the CIG the host communicates with. Mode 2 indicates the CIG is operating in Slave mode and all information from the host is being passed via the Master CIG.

examples:

gt-0-> rttgtr5.7 -e 2 <48-bit ethernet address>

(This CIG is a Slave CIG and will receive its messages via the Master CIG on ethernet)

gt-0-> rttgtr5.7 -e 1 <48-bit ethernet address>

(This CIG is a Master CIG and must pass its messages on to the waiting Slave CIG)

- *-E <site number> <host number>*

This switch is used to configure the CIG to communicate with the host computer via ethernet (the default is DR11). This interface supports the exchange of buffers among groups of applications over a network in a transparent fashion. This interface also supports the exchange of buffers larger than the maximum transmission unit of the underlying network by fragmenting a larger buffer into a number of smaller buffers which are sent in sequence over the network. The receiving end reassembles the fragments and presents the client with a complete buffer. For more information please refer to the Libex Programmers Guide.

- *-f <mode>*

This switch is used to configure the CIG's FLEA process to 1) act as an internal host computer. 2) act as an external host computer via DR11. 3) act as an external host computer via ethernet. 4) act as an embedded host computer via MPV.

examples:

gt-0-> rttgtr5.7 -f 1
(this runs flea in the internal host "standalone" manner)

gt-0-> rttgtr5.7 -f 2
(flea acting as sim-host sending packets to a real-time CIG via a DR-11 interface. This normally would be used *only* in a dual CIG configuration where 2 CIGs are communicating via DR-11 interface)

gt-0-> rttgtr5.7 -f 4 -m 1 2
(this runs flea to provide a host to another processor running the CIG RTSW. This would only be run on a slave CPU board. The choice of numbers after the -m switch is completely arbitrary)

gt-0-> rttgtr5.7 -m 2 1
(this runs allows the CIG to run with an embedded host or another CPU running rttgtr5.7 as invoked with the previous example. The choice of numbers after -m is in the opposite order as the above example.)

- *-d*

The -d switch forces a download of all files to the various graphic processor boards. Files downloaded include color lookup tables, texture maps and screen resolution. The system hardware must have the appropriate configuration to take advantage of these downloadable features, but will not fail if the download feature is not present.

- *-s <frame rate>*

The -s switch establishes the CIG frame rate. Current acceptable frame rates are 15 and 30 hertz. Example: -s 15

- *-h*

The -h invocation switch tells the real-time to display all currently available invocation switches. This is intended as a help facility.

- *-v*

The -v (verbose) switch is for system debugging and is normally not used by the customer.

4.0 FILES ON THIS RELEASE TAPE

GTOS4.7 - GT Operating system

/ETC/
- BOOT - script to boot Master CPU
- CONFIG.SYS - CPU configuration file

/BIN/
- BOOT147 - Boots GTOS on slave CPU
- CAT - List a file
- CONFIG - Configures CPUs
- CP - Copy file
- DBRW - Read / Write multi-volume tape file
- DISKSTAT - Display disk geometry and useage
- FDUMP - Hexadecimal listing of a file
- FMT - Format the disk
- HDR - Display downloadable file header
- LS - List directory
- MKDIR - Make directory
- MORE - Display ASCII file in page mode
- MSET - Memory set tool
- MT - Manipulate cartridge tape
- MV - Move/rename a file
- OD - Display binary file
- PRINTENV - Display current environment variables
- RM - Remove a file
- RMDIR - Remove a directory
- SEDIT - Simple editor
- TAR - Tape archive utility

/CIG/BIN/
- BALLGTR5.5 - Relocatable Ballistics task
- RTTGTR5.7 - Relocatable Real Time task
- DED6.0 - Display contents of DED

/CIG/BASE/
- BALLIST.CFG - Ballistics configuration
- COLOR.CFG - Color/Fade configuration
- DATABASE.CFG - Database configuration
- DATA2D.001 - 2D overlay data
- FINSIMT.001 - Final look up table
- FORCE0.078 - Force task
- FORCE1.078 - Force task
- LUT32.000 - GSP 3D color lookup table
- TASK2D.414 - GSP task
- TEXTURES.LST - List of files to download

/CIG/BASE/FILES.CFG/
- CFG101.000 - Flea configuration file - GT101
- CFG102.000 - Flea configuration file - GT102

CFG110.000 - Flea configuration file - GT110
CFG120.000 - Flea configuration file - GT120
CFG111.000 - Flea configuration file - GT111

/CIG/CONFIG/ (built by /bin/mkconfig)

/CIG/DATA/DB/
SPEC3COW.001 - ATP Database
SPEC3COW.002 - ATP Database
SIMTD0OW.01C - Dynamic Element Database

/CIG/DATA/DOWNLOAD/
PPMCP.ON
PPMCP.OFF
PPMCPA
PPMSPCA
PPMSPCB
PPMSS
SIMTOWMT.000 - Texture id map
SIMTOWM0.000 - Texture map
SIMTOWM1.000 - Texture map
SIMTOWM2.000 - Texture map
SIMTOWM3.000 - Texture map
SIMTOWM4.000 - Texture map
SIMTOWM5.000 - Texture map
SIMTOWM6.000 - Texture map
SIMTOWM7.000 - Texture map
SIMTOWM8.000 - Texture map
SIMTOWM9.000 - Texture map
SIMTOWMC.000 - Texture color map
GTFADE.RFT - Red fade table
GTFADE.GFT - Green fade table
GTFADE.BFT - Blue fade table
GTFADE.FCM - Fade control map

5.0 Problem Tracking Form

5.1 Reporting Problems

Although every attempt has been made to deliver software that has been fully tested, occasional problems may arise. If this occurs, please complete the attached Problem Tracking Form (PTR). Please be very specific about versions of software executing at the time of the failure.